

AD \_\_\_\_\_

Award Number: DAMD17-98-1-8110

TITLE: Diet, Genetic Polymorphisms and Breast Cancer in African-Americans

PRINCIPAL INVESTIGATOR: Lucile L. Adams-Campbell, Ph.D.

CONTRACTING ORGANIZATION: Howard University  
Washington, DC 20059

REPORT DATE: October 2000

TYPE OF REPORT: Annual Summary

PREPARED FOR: U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;  
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE October 2000		3. REPORT TYPE AND DATES COVERED Annual Summary (8 Sep 99 - 7 Sep 00)	
4. TITLE AND SUBTITLE Diet, Genetic Polymorphisms and Breast Cancer in African-Americans				5. FUNDING NUMBERS DAMD17-98-1-8110	
6. AUTHOR(S) Lucile L. Adams-Campbell, Ph.D.					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Howard University Washington, DC 20059  E-MAIL: ladams-campbell@howard.edu				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)  U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES					
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 Words)  Dietary fat and cooking practices, such as overcooking of meats that can lead to the formation of heterocyclic amines (HAAs) and polycyclic aromatic hydrocarbons (PAHs), differ by racial groups and culture. The project initially will assess the role of dietary fat, cholesterol, cooking practices (i.e. of fatty foods that would increase HAAs and PAHs), smoking, and alcohol consumption as risk factors for breast cancer. The primary goal of the project is to identify non-hormonal dietary risk and genetic susceptibility factors for breast cancer in African-American women. Specifically, the hypotheses that these are risk factors mediated by host capacity for metabolism will be tested. The study design also will allow the testing of new hypotheses as they emerge.  A case-control study of breast cancer incident cases and population-based controls will be conducted on African-American women in Washington, D.C. Genetic variation in apolipoproteins (Apo E, Apo A, Apo B), N-acetyl transferase (NAT 1 and NAT 2), Cytochrome P <sub>450</sub> (CYP1A1), Glutathione-S-transferase M1 (GSTM1), and alcohol dehydrogenase (ADH 2 and ADH3) will be determined. Odds ratios and logistic regression will be used to evaluate the association of genetic polymorphisms and dietary factors as risk factors for breast cancer. Also examined will be the effect modification for known breast cancer risk factors by these genetic polymorphisms.					
14. SUBJECT TERMS Breast Cancer				15. NUMBER OF PAGES 6	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT  Unlimited		

NSN 7540-01-280-5500

20010302 055

Standard Form 298 (Rev. 2-89)  
Prescribed by ANSI Std. Z39-18  
298-102

## TABLE OF CONTENTS

1.	Cover .....	1
2.	SF 298 .....	2
3.	Table of Contents .....	3
4.	Introduction .....	4
5.	Body .....	4
6.	Key Research Accomplishments .....	6
7.	Reportable Outcomes .....	6

### 3. INTRODUCTION

Dietary fat and cooking practices, such as overcooking of meats that can lead to the formation of heterocyclic amines (HAAs) and polycyclic aromatic hydrocarbons (PAHs), differ by racial groups and culture. The project initially will assess the role of dietary fat, cholesterol, cooking practices (i.e. of fatty foods that would increase HAAs and PAHs), smoking, and alcohol consumption as risk factors for breast cancer. The primary goal of the project is to identify non-hormonal dietary risk and genetic susceptibility factors for breast cancer in African-American women. Specifically, the hypotheses that these are risk factors mediated by host capacity for metabolism will be tested. The study design also will allow the testing of new hypotheses as they emerge. A case-control study of breast cancer incident cases and controls will be conducted on African-American women in Washington, D.C. Genetic variation in apolipoproteins (Apo E, Apo A, Apo B), N-acetyl transferase (NAT 1 and NAT 2), Cytochrome P<sub>450</sub> (CYPIA1), Glutathione-S-transferase M1 (GSTM1), and alcohol dehydrogease (ADH2 and ADH3) will be determined. Odds ratios and logistic regression will be used to evaluate the association of genetic polymorphisms and dietary factors as risk factors for breast cancer. Also examined will be the effect modification for known breast cancer risk factors by these genetic polymorphisms.

### 4. BODY

#### Recruitment of Cases and Controls

During Year 2, 186 women have been contacted to participate in this research project. A total of 46 women have been enrolled into the study (31 breast cancer cases and 15 controls). Below lists the specific break down of the recruitment scheme.

**Recruitment Scheme for Study Participants**

	<u>CASES</u>	<u>CONTROLS</u>
Study Population Estimates (per year)	120	500
Contacted	103	83
Ineligible	(3)	(9)
Eligible	100	74
Refused	(12)	(11)
Bad / wrong number	0	(13)
Disconnected number	0	(5)
Physician denied contact	(3)	-----
Deceased	(2)	-----
Interviewed	31	15

The study is benefitting from the time spent during Year 1 to carefully address methodological issues such as pilot testing of both questionnaires and the development of an eligibility survey for identifying controls. The Voter Registration list is being used to identify female population-based controls. This process has been a little more labor intensive than originally anticipated. One problem has been the format in downloading the tape to diskette. In addition, there are no gender or race variables. Therefore, once the computer generates a list of random names, all of the female names must be manually identified and each individual contacted by telephone. The eligibility form is administered during this initial contact to anyone expressing interest in the research project. The eligibility survey consists of 10 questions developed to screen and identify potential controls. The survey addresses specific criteria which assist in determining if a women should be included as a study participant.

As noted above, the voter registration list is labor intensive because it involves several steps. The list is on a 9-track tape which has to be downloaded to several diskettes using specific equipment. Once the data is on diskette it can be uploaded to a database program (e.g., Excel or dBASE) and formatted. However, it must then be uploaded to a statistical program (e.g., SPSS) to randomly generate the list of names. The data is write-protected therefore, the list generated from the computer can not be saved to a diskette. Thus, a hard copy is obtained.

We are selecting from approximately 64,000 women who are 35 years of age and older, living in 11 specific zip codes in Washington, DC. The Voter's Registration list only provides names and address, therefore another resource is needed to identify telephone numbers. The Haines 2000 Criss Cross Directory is being used to identify the telephone numbers of the population-based controls. This resource is designed to provide published telephone numbers for Washington, DC residents. A name or address can be searched in the Haines Directory and the telephone number for the person or dwelling of interest is given.

### **Additional Study Personnel and Physician Involvement**

Enrollment in the research project is expected to increase due to some recent changes. Three pre-doctoral students have recently be trained to assist in identifying study participants and to conduct interviews. This should increase the volume of women being contacted as well as the number of contacts being made per case or control. It takes several attempts to contact potential study participants, particularly the controls. In addition, the Project Coordinator has met with Surgeons and Oncologists to recruit their patients. The physician response has been very positive and has increased study participation.

### **Study Protocol**

The protocol of research guidelines and procedures has been updated for study personnel. The manual of operation describes in detail step by step procedures for each phase of the project (e.g., selection process for cases and controls, study procedures, data analysis, acronym and symbol definition for specific terms used in the study, consent forms and questionnaires). The procedure manual was designed to assist in standardizing study procedures (e.g., recruitment, interviewing, phlebotomy, processing of biological samples and data collection). Recently the manual has been updated to include specific patient recruitment guidelines to be used when dealing with individual physicians.

### **Future Study Plans**

The Project Coordinator will continue meeting individually with Physicians in order to increase the number of breast cases enrolled in the study. In addition, the Project Coordinator will identify additional Physicians to recruit their breast cancer cases. Also, the Predoctoral Fellows are diligently recruiting population-based controls in the attempt to increase enrollment.

### **5. KEY RESEARCH ACCOMPLISHMENTS**

- Finalization study questionnaires
- Hiring of additional study personnel (in kind) for recruitment
- Involvement of Surgeons and Oncologist for recruitment

### **6. REPORTABLE OUTCOMES**

Forthcoming